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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/528,591	11/22/2005	Tomoyuki Sato	077191-0022 (3577P008)	7142

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EXAMINER	
SHOME, ARUNDIPTA	

ART UNIT	PAPER NUMBER
3771	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/528,591

Applicant(s)

SATO ET AL.

Examiner

ARUNDIPTA SHOME

Art Unit

3771

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SE-US)
Paper No(s)/Mail Date 8-11-2005
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

DETAILED ACTION

1. Claims 1-21 are pending in this action.

Oath/Declaration

2. The declaration is objected to for not claiming the application as a national stage application as PCT Serial number PCT/AU2003/001228. Applicant has improperly claimed the PCT as foreign priority. See MPEP 1893.03a.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 2-6, 11-17 and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding Claim 2, there is a lack of antecedent basis for “the access means” on line 1.

Regarding Claim 3, there is a lack of antecedent basis for “the equalization opening” on line 3.

Regarding Claim 4, there is a lack of antecedent basis for “the equalization opening” on line 3.

Regarding Claim 6, it is unclear what the difference between the nosepiece and the nose-engaging member is.

Regarding Claim 11, there is a lack of antecedent basis for “the inflation mechanism” on line 3 (assumed to be dependent on 10).

Regarding Claim 12, there is a lack of antecedent basis for “said portion” on line 6.

Regarding Claim 13, there is a lack of antecedent basis for “the collar member” on line 2.

Regarding Claim 15, there is a lack of antecedent basis for “the base structure of the equalization assembly” on line 2.

Regarding Claims 16 and 17, there is a lack of antecedent basis for “the base structure” on lines 1/2/

Regarding Claim 20, there is a lack of antecedent basis for “the extendible portion” on line 1.

Claim 14 rejected for dependency on Claim 12, and Claims 5 and 6 are rejected for dependency on Claim 4.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 2 and 7 and 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Morgan (US Patent 3,680,556).

Morgan discloses: a diving apparatus which includes a support structure (34) that is engageable with a user’s head. Also disclosed is a lens (48) mounted on the support structure, the lens and support structure define a breathing space from which the diver can be supplied with air, as shown in Figure 1.

A sealing arrangement (67) is positioned on the support structure to sealingly engage the diver’s face so that the breathing space is substantially airtight (col.6, lines 50-60)

An equalization assembly (55) is mounted on the support structure, the equalization assembly includes an access means (56) to allow the diver to close his or her nostrils so that the diver can carry out an equalization procedure.

A gas supply arrangement (12) is in fluid communication with the breathing space to supply the breathing space with gas.

Regarding Claim 2, the access means is in the form of a nose-engaging member (60) that is displaceable with respect to the support structure between an inoperative position in which the nose-engaging member is free of a diver's nose and an operative position in which the nose-engaging member can be used to block the diver's nostrils so that the diver can carry out an equalization procedure. (col. 4 lines 1-10).

Regarding Claim 7, Morgan discloses that the gas supply arrangement (12) includes a regulator (80) that is in fluid communication with the breathing space.

Regarding Claim 18, Figure 4 of Morgan shows an accessory for diving having a support structure 34, a lens 48 mounted on the support structure, and the lens and the support structure together forming a breathing space. The support structure defines an equalization opening 64 in communication with the breathing space. An access means 55 (the equalization assembly) is mounted on the support structure to close the equalization opening 64. Morgan in column 4, lines 1-5 discloses that the equalization device has a rod 56 which extends through the retainer into the interior of the helmet 11, and the access means is configured to permit the diver to gain access to the breathing space to carry out the equalization procedure.

Regarding Claim 19, Morgan also discloses that the access means 55 has a base structure 56 that is engageable with an edge portion of the support structure defining the equalization

opening 64, as shown in Figure 4. A nose engaging member 60 is also disclosed that is attached to the base structure and is displaceable away from the base structure into an operative position in which the diver can shut his or her nostrils with the nose engaging member (col. 4, lines 1-10) and towards the base structure into an inoperative position in which the nose-engaging member is clear of the diver's nose (since the pad is pushed towards the nostrils, it can be pushed away into an inoperative position).

Regarding Claim 20, it appears that rod 56 of Morgan is an extendible portion since the access means 55 can be pushed against a diver's nose (col. 4 lines 1-10) and the rod appears to be slidable through the opening 64. This rod is interposed between the base structure and the nose engaging member 60 to extend and retract as the nose engaging member is displaced into and out of the operative position.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morgan (US Patent 3,680,556) in view of Winefordner (US Patent 5,860,168).

Regarding Claim 3, Morgan lacks an equalization assembly that includes a pocket shaped flexible membrane. However, Winefordner teaches an equalization assembly having a pocket shaped flexible membrane (32) that has an open end that is fast with the support structure (12) at

the equalization opening (recesses of membrane 32) for the flexible membrane. The membrane (32) also has a closed end that defines the nose –engaging member, since (32) is a recess and the inner side of the membrane touches the user's nose. The membrane is dimensioned to accommodate the ingress of at least a diver's thumb and forefinger (col. 2 line 64). It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the equalization assembly of Morgan with the equalization assembly taught by Winefordner so that a user can easily perform an equalization procedure with one hand.

Regarding Claim 4, Morgan lacks an equalization assembly with an extendible portion in which two digits of the diver can be received. However, Winefordner teaches an equalization assembly that includes a base structure (20) that would be sealably engageable with an edge portion of the support structure (11) of Morgan. This base structure and the support structure define the equalization opening (for recesses 32), see figure 2. The recessed membrane (32) is an extendible portion is interposed between the nose engaging member and the base structure, see Figure 4 of Winefordner. The membrane (32) defines a volume in which at least two digits of the diver can be urged toward the diver's nose into the operative position and retracted from the diver's nose into the inoperative position (col. 2 lines 60-65). It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the equalization assembly of Morgan with the equalization assembly taught by Winefordner so that a user can easily perform an equalization procedure with one hand.

Regarding Claim 5, Morgan lacks a nose engaging member that includes a pair of sockets shaped to receive a digit. However, Winefordner teaches an equalization assembly that includes a nose engaging member (32) that includes a pair of sockets, each socket is shaped to receive a

digit, as shown in Figure 4. The sockets are spaced so that the diver's nose can be received between the sockets when the nose engaging member is displaced into the operative position (see Figure 4). It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the equalization assembly of Morgan with the equalization assembly taught by Winefordner so that a user can easily perform an equalization procedure with one hand.

9. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morgan (US Patent 3,680,556) in view of Winefordner (US Patent 5,860,168) as applied to claim 5 above, further in view of Anderson (US Patent 4,077,068).

Regarding Claim 6, Winefordner lacks a nosepiece mounted on the sockets. However, Anderson teaches a nosepiece (44 or 46) for contacting the user's nose. It would have been obvious to one of ordinary skill in the art at the time the invention was to provide Winefordner's sockets with a nosepiece as taught by Anderson so that the sockets will better contact the user's nose. This combination of Morgan/Winefordner/Anderson would have a nosepiece mounted on the sockets, the nosepiece being configured so that as the nose-engaging member (32) of Winefordner is urged into contact with the diver's nose, the nose piece serves to close the diver's nostrils.

10. Claims 8 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morgan as applied to claim 7 above and further in view of Troup (US patent 6,070,577) and Garrahan (US Patent 3,351,089).

Regarding Claim 8, Morgan discloses a connecting valve assembly (18) that has an inlet and an outlet, the primary air source (12) is connected is connectable to the inlet.

A safety valve (88) is disclosed that has a primary inlet that is connected to the outlet of the connecting valve assembly (by way of tube 26). This valve also has a primary outlet for connecting to regulator (80).

Morgan does not disclose a secondary inlet for the safety valve and a backup self contained air supply. However, Troup teaches a reserve air supply (200) with an outlet valve assembly (220) for underwater diving. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a reserve air supply to the device of Morgan as taught by Troup so that the diver has another source of air in case of an emergency.

Morgan/Troup lacks a control means to permit selection of airflow from either the backup air supply or the primary air source, or a safety valve with a second inlet. Garrahan (US Patent 3,351,089) teaches a control valve for a diving apparatus that has manually operated valves (i.e., control means) and a plurality of inlet connections for connection to different gas sources (col. 1 lines 65-70). It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the safety valve 88 of Morgan with the control valve as taught by Garrahan so that a user is able to switch to inhaling air from the reserve supply in case of an emergency.

This combination of Morgan/Troup/Garrahan would have a safety valve with a second inlet and the reserve air supply with the outlet valve connected to the secondary inlet of the safety valve so that the backup air supply is fluidly connected to the interior of the helmet 11 of Morgan.

Regarding Claim 12, Morgan teaches a hood (142) and a fastening structure (144) positioned over the hood that is engageable with the support structure. The support structure (11)

is shaped to carry the sealing arrangement (67) so that in use the sealing arrangement is interposed between the diver's face and a portion of the support structure (col. 6 lines 55-60). The fastening structure is adjustable so that it can be moved towards and away from the diver's face, since Figure 2 of Morgan shows that the fastening structure is detachable from the support structure.

11. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morgan Troup and Garrahan (US Patent 3,351,089) as applied to claim 8 above, and further in view of O'Neill (US Patent 5,040,528).

Regarding Claim 9, Morgan discloses a shoulder harness (14). The support structure is connected to the shoulder harness, as shown in Figure 1.

Morgan lacks a flexible collar. O'Neill teaches a flexible collar (35) for a diving helmet. It would have been obvious to one of ordinary skill in the art at the time the invention was made to add a flexible collar as taught by O'Neill to the helmet of Morgan so that the helmet has a soft protective cover over the user's shoulders and reduces the weight bearing load of the helmet on the shoulders. This collar would be interposed between the shoulder harness and the helmet of Morgan because O'Neill teaches that the flexible collar is a neck dam for covering the neck of the diver (col. 5 line 55).

The modified Morgan's device has the reserve air supply (200, see Fig. 1 of Troup) in the form of a breathing tank, and the reserve tank can be connected to the main tank, see col. 3 line 45 of Troup.

12. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morgan in view of Troup further in view of Garrahan further in view of O'Neill as applied to claim 9 above, and further in view of Eungard (US Patent 5,607,258).

Regarding Claim 10, Morgan does not disclose a flexible collar having an inflatable bladder with an inflating mechanism. Eungard teaches a diving harness with an inflatable bladder (16). Eungard also teaches an inflation mechanism (valve 96) mounted on the bladder for permitting the diver to inflate the bladder (col. 4, lines 27-35). It would have been obvious to one of ordinary skill in the art at the time the invention was made to add this inflatable bladder as taught by Eungard to the flexible collar of the modified Morgan device in order to provide buoyancy control for the diver. This inflation mechanism would also be capable of allowing the diver to adjust the fit of the collar member it is attached to.

Examiner also notes that Troup teaches that the backup air supply can inflate a buoyancy control device (col. 5 lines 15-20) via valve (220).

Regarding Claim 11, the combination of Morgan and Garrahan as noted with respect to claim 8 has a secondary outlet as shown in Figure 1 of Garrahan. Morgan does not teach a conduit connected to an inflating mechanism. Eungard teaches a conduit (90) connected to the inflating mechanism (96) so that air from a source can be used to inflate the bladder. It would have been obvious to one of ordinary skill in the art at the time the invention was made to connect a conduit from this safety valve to the inflating mechanism so that the reserve air supply of Troup can inflate the bladder, as taught by Troup.

13. Claims 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morgan in view of Troup further in view of Garrahan as applied to claim 12 above, further in view of Rudolf (US Patent 5,522,091).

Regarding Claim 13, Morgan discloses that the support structure has a base member (34). The collar would have to be attached to this base member so that the collar is adjacent to the user's shoulders. However Morgan lacks an adjustable cover assembly that is mounted to the base member. Rudolf teaches a separable body of impact resistant energy absorbing material that is removably positioned over the helmet front portion. It would have been obvious to one of ordinary skill in the art at the time the invention was made to add this cover as taught by Rudolf to the helmet of Morgan so that the diver is protecting from head impacts. The resulting combination would have an adjustable cover assembly that is mounted on the base member, the cover assembly being adjustable between an operative position in which it covers the fastening structure and an inoperative position in which it allows access to the fastening structure, since Rudolf teaches that the cover is removably positioned over the helmet by detachable fasteners (abstract lines 8-14).

Regarding Claim 14, Morgan discloses that the regulator (80) is mounted on the base member (34) to be in fluid communication with the breathing space.

Regarding Claims 15 and 16, Morgan/ Winefordner does not disclose that the base structure of the equalization assembly is detachably mounted on the base member so that the equalization assembly can be detached from the base member to provide access to the breathing space. However, the only difference between the claim and the prior art here is the issue of separability. It would have been obvious to one of ordinary skill in the art at the time the

invention was made to make the equalization assembly detachably mounted on the base member, since it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art. *Nerwin v. Erlichmann* 168 USPQ 177,179.

14. Claim 17 rejected under 35 U.S.C. 103(a) as being unpatentable over Morgan in view of Troup, further in view of Garrahan further in view of Rudolf as applied to claim 16 above, further in view of Page (US Patent 5,219,368).

Regarding Claim 17, Morgan lacks a quick release clipping assembly arranged on the base structure to permit the base member to be clipped off. However, Page teaches a quick release clip (24) for disconnecting a base structure (12) from a base member (14). It would have been obvious to one of ordinary skill in the art at the time the invention was made to add this clip as taught by Page to the helmet of Morgan so that a diver can easily disconnect the helmet and remove it once the diving activity is complete.

15. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morgan (US Patent 3,680,556) in view of Anderson (US Patent 4,077,068).

Regarding Claim 21, Morgan lacks a nosepiece mounted on the nose engaging member. However, Anderson teaches a nosepiece (44 or 46) for contacting the user's nose. It would have been obvious to one of ordinary skill in the art at the time the invention was made to add this nosepiece to the nose engaging member of Morgan so that the sockets will better contact the user's nose. This combination of Morgan/Anderson would have a nose piece mounted on the nose engaging member and shaped to bear against the diver's nostrils to block the nostrils when the nose engaging member is displaced into its operative position.

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Semcia (US Patent 6,666,210) is cited to show a diving mask with compensation means.

Morgan (US Patent 3,958,275) is cited to show another diving helmet.

Díaz (US Patent 7,406,964) is cited to show a diving helmet and associated gas tank.

Kaburaki (US Patent 5,079,775) is cited to show a diving helmet.

Garrahan (US Patent 3,845,768) also is cited to show another form of a diving helmet.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ARUNDIPTA SHOME whose telephone number is (571)270-5539. The examiner can normally be reached on Monday through Friday 8:30am to 6pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Justine Yu can be reached on 571-272-4835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Arundipta Shome/
Examiner
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Sept. 23, 2008.

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